

Remarks/Arguments

Claims

Claims 1-8 and 10 were rejected. Claim 9 was allowed. Claim amendments are presented. Claims 11-
5 13 have been added. Claims 1-4, 6, 9, and 11-13 remain.

Rejected claims 5, 7, 8, and 10 have been canceled.

10 Claims 1-3 were rejected as being anticipated by Walton US 7,095,709. As noted by the Examiner, Walton teaches a frequency diversity transmission mode that redundantly transmits modulation symbols over multiple OFDM sub-bands, also known as carriers. (Walton column 2, lines 60-63.) The transmission technique of Walton is to generally improve the reliability of data transmissions.

15 Walton does not recognize or teach the problem of periodic nulls caused by a multipath environment and does not recognize or teach that any general redundancy pattern in the sub-bands may not achieve the intended result of higher reliability. A periodic or near periodic assignment of symbols to sub-bands may overlay the periodic nulls in a multipath channel and impair all redundant copies of the symbols transmitted.

20 Applicant's claimed invention recognizes the problem of periodic nulls caused by a multipath environment and provides a specific solution to the problem. Applicant identified the problem in the application: "To have a robust signal there must be certainty that the frequency diversity pattern does not correlate with the null pattern, otherwise all of the carriers associated with a bit could be lost." (application page 4, lines 5-9) Applicant's solution is assigning redundant data bits to carriers to
25 produce a non-periodic spacing of the assigned carriers. Walton does not recognize the periodic null problem and the technique of Walton is not assured of addressing the problem.

Regarding claim 1, the claim has been amended to clarify that the frequency diversity is to overcome impairment caused by periodic nulls in a multipath channel. The claim retains the original limitation
30 that the assignment of bits to carriers produces non-periodic frequency spacing of the assigned carriers. Walton does not disclose this limitation. Support for this amendment is found in the application at page

2, lines 17-22; page 5, lines 14-16; page 15, lines 13-14; and page 20, lines 8-10. No new matter has been added.

Regarding claim 2, the claim has been amended to include the limitation that the assignment of data bits to carriers produces non-periodic carrier spacing of carriers modulated by the same data bit. This limitation clarifies the objective of the differing spacing of the carrier assignment. Walton and the prior art cited does not disclose this limitation. Support for this amendment is found in the application at page 5, lines 14-16; page 7, lines 9-10; page 15, lines 13-14; page 20, lines 8-10. No new matter has been added.

Rejected dependent claims 3 and 4 should be allowable along with independent base claim 1.

Claim 6 was rejected as anticipated by Walton US2002/0154705. Applicant respectfully disagrees that Walton discloses applicant's claimed invention. Walton paragraph 0016 was cited as disclosing applicant's non-periodic separation of the carriers. Walton does not disclose this limitation. This Walton reference does not recognize the problem of periodic nulls and does not teach applicant's solution to create non-periodic carrier spacing for redundant bit assignments.

Regarding claim 6, the claim has been amended to clarify the purpose is to create frequency diversity that is resistant to nulls at periodic frequency intervals. Support for this amendment is found in the application at page 2, lines 17-22; page 5, lines 14-16; page 7, lines 9-10; page 15, lines 13-14; page 20, lines 8-10. No new matter has been added.

Allowed claim 9 has been amended to clarify that the I and Q amplitudes are carrier amplitudes. Support for this amendment is found in the application at page 15, lines 26-29. No new matter has been added.

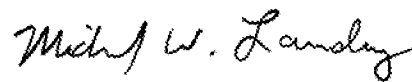
New claims 11-13 have been added. Support for these new claims is found in the application at page 15, lines 29-32 and page 16 lines 9-12. No new matter has been added.

Conclusion

In view of the foregoing amendments, the claims are in condition for allowance and such action is
5 respectfully requested.

If it is felt that direct communication would serve to advance prosecution of this case, the examiner is
invited to call the attorney at the below listed telephone number.

10 Respectfully submitted,

A handwritten signature in black ink that reads "Michael W. Landry". The signature is written in a cursive style and is positioned above a dotted line.

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